R E P O R T R E S U M E S

ED 018 002 24 EA 001 202

CONGRUENCE AND DISSONANCE IN THE ECOLOGY OF EDUCATIONAL ADMINISTRATORS AS A BASIS FOR DISCRIMINATING BETWEEN PATTERNS OF LEADERSHIP BEHAVIOR.

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REPORT NUMBER BR-6-8938 PUB DATE SEP 67
GRANT OEG-3-7-068938-2075
EDRS PRICE MF-$0.25 HC-$1.40 33P.

DESCRIPTORS- *ADMINISTRATIVE PERSONNEL, LEADERSHIP, *LEADERSHIP QUALITIES, ADMINISTRATOR SELECTION, *ECOLOGY, *BEHAVIOR PATTERNS, PERSONALITY ASSESSMENT, WORK ENVIRONMENT, *PRINCIPALS, SECONDARY SCHOOLS, SECONDARY SCHOOL TEACHERS, HYPOTHESIS TESTING, STATISTICAL ANALYSIS, ENVIRONMENTAL INFLUENCES, ECOLOGICAL FACTORS, PREDICTIVE MEASUREMENT, NORMAL,

IN AN EXPLORATORY STUDY OF LEADERSHIP BEHAVIOR AND THE DIMENSIONS OF INTERACTION BETWEEN EDUCATIONAL ADMINISTRATORS AND THEIR ACADEMIC WORK ENVIRONMENT, ANALYSIS WAS MADE OF MAILED QUESTIONNAIRE RESPONSE DATA FROM A RANDOMLY SELECTED SAMPLE OF 83 SECONDARY SCHOOL PRINCIPALS (83 PERCENT OF 100 SURVEYED) AND TEN TEACHERS FROM EACH RESPONDING SCHOOL. FINDINGS CONFIRMED THE STUDY'S BASIC HYPOTHESIS THAT PRINCIPALS WHO ARE THE MOST EFFECTIVE LEADERS ARE SIGNIFICANTLY MORE CONGRUENT WITH THEIR ENVIRONMENT THAN THE LEAST EFFECTIVE LEADERS. DISCRIMINATING VARIABLES INCLUDED PERSONALITY NEEDS AND ENVIRONMENTAL PRESS. FURTHER RESEARCH IS SUGGESTED SO THAT FINDINGS OF THE STUDY WILL HAVE PRACTICAL AS WELL AS THEORETICAL SIGNIFICANCE. (JK)

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ED018002

FINAL REPORT
Project No. 6-8938 -24
Grant No. OEG-3-7-068938-2675

Congruence and Dissonance in the Ecology of Educational Administrators as a Basis for Discriminating Between Patterns of Leadership Behavior

September 1967

U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

Office of Education
Bureau of Research

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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EA 001 202

Title of Report

Project No. 6-8938
Grant No. OEG-3-7-068938-2675

Gary Franklin Olson

September 1967

The research reported herein was performed pursuant to a grant with the Office of Education, U. S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

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INTRODUCTION

This study is predicated on the tacit assumption that organized, concerted efforts, aimed at securing the most competent and skilled individuals for positions of leadership in the schools, will be more rewarding than if the procurement of those leaders is left to chance. Given this assumption, it is quite evident that effective procedures for selecting educational leaders are necessary.

It would be ideal if methods were available which would unerringly lead to the selection of only the most competent individuals, thus, insuring that the schools will receive the educational leadership they need for their success. Unfortunately, this ideal has not been attained and there is skepticism that it has even been approached. In view of the increasing demands and growing need for effective educational leaders, a note of urgency is sounded which requires that the techniques by which those leaders are selected be improved.

Selection of Educational Leaders. The actual process of selection is essentially one of prediction. An assessment is made of each individual comprising the resource pool in order to determine the liklihood of each candidate to perform in the desired fashion.

The task of the predictive process is to ascertain the factors which may be assessed of an individual which can effectively differentiate between potential effective and ineffective leaders. These differentiating factors of leadership may then be used to estimate the probable success of each of the candidates as a leader prior to his actually engaging in the activity. The effectiveness of the predictive process, and hence selection, is dependent upon the quality and quantity of factual information available for each of the candidates which will discriminate between potential effective and ineffective leaders. Herein lies the profound task for the improvement of existing selection techniques: to determine which differentiating factors of leadership can be made available and which will effectively discriminate between candidates whose leadership performance, once chosen, will be effective as contrasted with those whose performance will be ineffective.

Traditional Selection Procedures. Traditionally, the selection of educational leaders has been based largely on subjective judgments with very little, if any, objective, discriminating information available to aid in prediction. When techniques such as letters of recommendation, academic grades, biographical data, and the interview which have traditionally been used to obtain information have been placed under scientific scrutiny, their effectiveness in differentiating between effective and ineffective leaders has left much to be desired.

Biographical data, such as personal history blanks, can predict to a degree of carefully constructed and clinically evaluated. Peck utilized a four-page Biographical Information Form, in conjunction with a sentence completion form, as a projective instrument to predict principals' ratings of teacher performance. When used in this projective manner, the results were generally favorable.[1]

In another study of biographical data, Lipham found that effective and ineffective groups of educational administrators could not be differentiated on the biographical variables of age, sex, marital status, graduate study, classroom teaching experience, and years of experience as a principal.[2] It appears that the most efficient use of biographical data is in supplying data about the applicant's marital status, experience, background, and the like rather than as a predictive device.[3]

Bozarth studied the letter of recommendation as a tool for selection and concluded that the professional promise of an individual could not be predicted from comments made in such letters.[4] Others have concurred on the lack of usefulness of the letter of recommendation as a selection tool.[5]

In a study of the predictive efficacy of academic grades, Battle concluded that grades should not be employed as the sole predictor of success.[6] Scott and Mitchell also tested the validity of college grade-point average as a selection criterion

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[1]Robert F. Peck, "Predicting Principal's Ratings of Teacher Performance from Personality Data," Journal of Educational Psychology, 50:70-74 (April, 1959).

[2]James M. Lipham, "Personal Variables of Effective Administrators," Administrator's Notebook, 9:1-4 (September, 1960).

[3]American Association of School Administrators, Professional Administrators for America's Schools, p. 160.

[4]Henry C. Bozarth, "A Study of the Validity of Letters of Recommendation in Screening Applicants for Foundation in Educational Administration at the University of Texas." Unpublished Master's thesis, University of Texas, 1956.

[5]American Association of School Administrators, Professional Administrators for American Schools, p. 159.

[6]Richard T. Battles, "College Grades in Relation to certain Measurable Qualities of Participants in F. E. A." Unpublished Master's thesis, University of Texas, 1956.

and concluded that leadership ability is based on much more than a demonstration of academic achievement.[7]

The interview is a common technique in selection but is subject to bias, lack of trained interviewers, and other such errors. Wagner reviewed the literature germain to the use of the employment interview and concluded that, under certain conditions, the use of the interview could provide a useful prediction of performance. However, it was suggested that the effectiveness of the interview is enhanced if it is oriented to the requirements of the position but, because of the difficulty, only a person well trained in interview methodology can analyze the job and the individual simultaneously.[8] Authoritative opinion is consistent in questioning the value of the standard one-half hour employment interview as a predictor of anything.[9]

Objective Assessments as Selection Techniques. The shortcomings of traditional techniques to offer discriminatory ability has given impetus to attempts at improving selection techniques through the use of objective assessments.

A seven-year project at the University of Tennessee was concerned with discriminating between effective and ineffective educational administrators by means of various objective assessments. One study in this project was designed to determine the predictive value of a set of standardized tests. The Miller Analogies Test were found to be significantly related to the behavior areas of the Tennessee Rating Guide, Democratic Operation, Intelligent Operation, and Ethical and Moral Strength. The Watson-Glaser Critical Thinking Appraisal correlated with Ethical and Moral Strength. The Co-operative English Test did not relate to any of the behavioral areas.[11]

The University of Texas reports that the Guilford-Martin, Inventories had some ability to discriminate between high and low potential administrators but that neither the Allport-Vernon-

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[7]William G. Scott and Charles C. Mitchell, "College Grades Predict Success?", Personnel Journal, 36:341-42 (February, 1958).

[8]Ralph Wagner, "The Employment Interview: A Critical Summary," Personnel Psychology, 2:17-46 (1949).

[9]American Association of School Administrators, Professional Administrators for America's Schools, p. 160.

[10]Michael Y. Nunnery, Characteristics of School Administrators, Mimeographed report. Knoxville: University of Tennessee, Department of Educational Administration and Supervision, College of Education, 1959.

Lindzey Study of Values nor the Strong Vocational Interest Blank was able to differentiate between the two groups.[11]

While the use of objective assessments has been found to improve predictive or discriminatory effectiveness somewhat, no one procedure, or group of procedures, including traditional selection devices, has yet been developed which will accurately differentiate between those individuals who will provide quality leadership and those who will not.[12]

One of the most frequent contributors to inaccuracy in the process of discrimination is contingency factors that affect behavior but which are not explicitly considered in the discriminatory process. It is easily recognizable that most all attempts at improving selection techniques have been oriented to assessment of the individual only, through assessment of personality characteristics, aptitudes, and abilities. The environment or situation in which the individual will participate is a contingency factor often totally neglected or, if recognized, is disregarded with the sweeping assumption that the environments of all schools are identical. Research conducted on education has shown this assumption to be fallacious. Consequently, as the point of departure for this study, it is suggested that improvement of existing selection procedures could perhaps be made if the contingency factor of the individual's environment was considered.

A Conceptual Scheme. One approach to the study of personalities in relation to their environment is to utilize an ecological frame of reference. Ecology is a branch of biology which has long espoused the idea that behavior is a function of the transactional relationship between the organism and its environment. The theory of personality of Henry A. Murray is especially suited for this ecological approach and provides the theoretical orientation to the current study.[13] Central to this theory are the concepts of personality needs and environmental press.

In a general sense, needs provide the motivations for an individual's characteristic pattern of behavior or the characteristic activities in which the individual engages. Press are those aspects of the environment which facilitate or inhibit, reject or accept, the characteristic behavioral pattern or activities of the individual. In keeping within the ecological framework, behavior is seen to be a function of the interaction

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[11]Kenneth E. McIntyre, Recruiting and Selecting Leaders for education.

[12]American Association of School Administrators, p. 153.

[13]Henry A. Murray, Exploration in Personality

between the needs of an individual's personality and the press of the immediate environment which impinge upon the individual. The fundamental postulate derived from this theory is that the performance of an individual in his environment will become more effective as the degree of congruence between needs and press increases. In other words, an individual will perform best in an environment which conforms to his personality. This postulate holds vast implications for the process of selection. If the postulate could be substantiated, the process of selection would become one of fitting an individual to the environment in which he can best perform on the basis of a comparison of his personality needs and environmental press.

Within this ecological framework, the problem of discriminating between educational administrators who are characterized by various patterns of leadership behavior can be structured in terms of needs. In this way, the contingency factor of the environment in which the individual works can explicitly be considered in the discriminatory process.

In view of the growing need to be able to select from prospective administrators those who will contribute quality leadership to the school, a probe into the problem of discrimination appears warranted and needed.

Statement of the Problem. The problem of the current study is to investigate the dimensions of interaction between educational administrators and their academic work environment which are associated with the behavior of those administrators as leaders.

Specifically, the primary purpose of this study is to ascertain the extent to which indices of the degree of congruence between personality and environmental variables will discriminate between groups of educational administrators classified according to most-effective and least-effective patterns of leadership behavior.

Secondary purposes of the study are: (1) to compare the relative efficacy of discriminations provided by indices of personality-environment interaction, personality indices and environmental indices; and (2) to evaluate the potential value of indices of personality-environment interaction as predictors of patterns of leadership behavior.

Basic Hypotheses. The basic hypotheses to be tested and their underlying assumptions are as follows:

Hypothesis I. The most basic hypothesis to be tested is: Indices of the degree of congruence between personality needs and environmental press will discriminate between a group of educational administrators classified according to most-effective patterns of leadership behavior as contrasted with a group classified according to least-effective patterns of leadership behavior.

The basic assumption underlying this hypothesis is that the performance of administrators is influenced by the nature of the interaction between their personalities and the press of the environment in which they work.

Hypothesis II. The second hypothesis is closely allied to the first and is: Educational administrators classified according to most-effective patterns of leadership behavior will be more congruent with the press of their respective environment than will educational administrators classified according to least-effective patterns of leadership behavior.

The basic assumption underlying this hypothesis is effective performance of educational administrators, resulting in effective leadership, will be maximum when there is a high degree of congruence (low conflict) between the personality needs of the individual and the press of the environment which provides sources of resolution for those needs. Conversely, effective performance will be minimum when there is a high degree of dissonance (high conflict) between needs and press.

Hypothesis III. The third hypothesis to be tested is: Discriminations between most-effective and least-effective leadership groups based on the degree of congruence between personality needs and environmental press will be more effective than discriminations based solely on personality needs variables.

This hypothesis is premised on the assumption that the most-effective leaders cannot be characterized by any constellation of personality traits by which they may be differentiated from leaders who are not as effective. Further, it is assumed that differentiation among the behavior patterns of individuals can best be accomplished by considering the interaction between the individual and his environment rather than consideration solely of the attributes of the individual.

Hypothesis IV. The fourth hypothesis to be tested is: Discriminations between most-effective and least-effective leadership groups based on the degree of congruence between personality needs and environmental press will be more effective than discriminations based solely on environmental press variables.

The assumptions underlying this hypothesis are essentially those for Hypothesis III. It is assumed that neither the most-effective nor the least-effective leaders can be characterized by the situations in which they perform but their differences are essentially differences in their interaction with their environment.

Hypothesis V. The fifth hypothesis to be tested is: Individual educational administrators can be predicted as belonging to either the most-effectove or least-effective leadership

behavior groups on the basis of indices of degree of congruence between personality needs and environmental press.

It is assumed that, by comparing an individual's profile of indices of degree of congruence between needs and press with each of the criterion groups' composite profile, a decision can be made as to which group the individual belongs.

METHOD

Experimental Design. In order to test the basic hypotheses, the study design employed was one of nominal calssification with the criterion variables divided into classes. In this instance, group membership is the criterion. The experimental design required that measures of leadership behavior be obtained for all members of the sample by a socio-psychological method which entailed: (1) an assessment of the personality needs of the individual; (2) an assessment of the press of the academic environment in which the individual works; and (3) a comparison of needs and press variables with the degree of congruence revealed by the comparison servin as the discriminant variables.

Source of Data for Criterion Variables. The Leader Behavior Description Questionnaire (LBDQ) was utilized to provide the criterion data. The LBDQ contains 40 separate items each of which describes a specific way in which a leader may behave. Respondents who are asked to describe the behavior of their leader indicate the frequency with which the leader engages in a specific type of behavior by marking one of five adverbs: always, often, occasionally, seldom, never. Only 30 of the 40 items are scored, 15 for each of the two dimensions, Consideration and Initiating Structure.

Individuals who scored above the sample mean on both LBDQ dimensions were classified as belonging to the most-effective leadership group while those individuals who scored below the sample mean on both dimensions were classified as belonging to the least-effective group.

Source of Data for Independent Variables. The Activities Index (AI) and the High School Characteristics Index (HSCI) were selected to provide the data relative to the independent or discriminant variables.

The AI provides for the measure of 30 personality needs. The insturment consists of 300 items distributed among 30 scales of 10 items each. Each 10 item scale is representative of a particular need.

The HSCI is the external counterpart of the AI and is designed to measure press of the environment which are analogous to the needs scales of the AI. The HSCI also consists of 300 items distributed among 30 scales of 10 items each with the scales of the HSCI paralleling those of the AI.

Collection of Data. To constitute the study sample population, 100 secondary-school principals were selected at random from Illinois schools who met the following criteria: (1) the individual must have been listed as "principal" in the 1965-66 Illinois Schools-Directory Supplement; (2) must have been principals of public schools grades 9-12 or 10-12; (3) must have held the position of principal during the 1965-66 school year; and (4) all subjects were to be principals in schools with pupil enrollments of not less than 200 nor more than 1,200.

Ten teachers within each subjects' school were also selected at random to describe the behavior of the leader and the press of the school's environment.

After the subjects had been selected, and before the subjects themselves had been contacted, a letter was sent to their respective superintendents asking permission for the principal and selected members of the high school staff to participate in the research project. From this initial request, 95 superintendents approved the participation of the selected members of their staffs. The actual study sample, then, consisted of 95 subjects and their respective schools.

Since the instruments employed in the study lend themselves to self-administration without apparent loss of reliability or validity, the problem of how to expeditiously acquire the greatest yield of comprehensive and objective data was solved by the use of the survey technique. Each of the 95 principals were sent a research packet containing: (1) a letter of transmittal to the principal; (2) an instruction sheet; (3) a principal's test packet; and (4) 10 teacher test packets.

The principal's test packet, a 9 x 12 manila envelope with prepaid postage and addressed to the investigator, contained one Activities Index and one answer sheet. Each principal was instructed to complete his instrument, enclose it in the envelope in which it came, and return it to the investigator via mail.

The 10 teacher test packets were identical to that of the principal's. Each contained a letter of transmittal, similar to that of the principal's and which contained instructions for completing the instruments; one High School Characteristics Index with answer sheet; and one Leader Behavior Description Questionnaire. Like the principal, the teachers were instructed to complete the instruments, enclose them in the envelope in which they came, and return the packet directly to the investigator via mail. The teachers were asked to sign their names to the

instruments so that the instruments could be identified but that their replies would be held in the strictest confidence.

Ten days after the initial mailing, a follow-up letter was sent to those principals and teachers who had not returned their instruments. Ten days after the mailing of the follow-up letters, those principals who still had not returned their instruments were contacted by telephone.

Responses were finally obtained from 92 of the 95 schools comprising the study sample, a 97 per cent return. In order that the data received from each school could be used, it was necessary that responses be obtained from the principal and at least four teachers. Usable sets of data, the response of the principal and at least four staff members, were provided by 83 of the 92 schools which responded. The 83 usable sets of data represented an 87 per cent usable return from the 95 schools comprising the study sample.

Methods of Analysis. In keeping with the study design, the criterion needed to be a dichotomous one. This was accomplished by placing each subject's scores on both leadership dimensions in a quadrant scheme presented in Figure 1. The sample mean on both Consideration and Initiating Structure establish the axes for this coordinate system.

FIGURE 1

SUBJECTS' LBDQ SCORES PLACED IN QUADRANT SCHEME

1, 5, 6, 10, 25, 36, 39, 51, 60, 76, 78, 80, 82 (IV) +C -IS (N=13) (16%)	7, 8, 13, 15, 17, 18, 22, 26, 27, 28, 33, 35, 38, 40, 47, 48, 52, 54, 55, 56, 58, 59, 62, 63, 66, 68, 73, 74, 79 (I) +C +IS (N=29) (35%)
11, 12, 14, 19, 20, 21, 23, 24, 30, 31, 32, 44, 45, 46, 49, 50, 53, 57, 65, 67, 71, 77, 81, 83 (III) -C -IS (N=24) (29%)	2, 3, 4, 9, 16, 29, 34, 37, 41, 42, 43, 61, 64, 69, 70, 72, 75 (II) +IS -C (N=17) (20%)

Consideration Sample Mean = 42.68

Initiating Structure Sample Mean = 40.54

By the use of the quadrant scheme, the leaders described in Quadrant I are those whose LBDQ scores are above the sample mean on both dimensions, while those who are described in Quadrant III are those whose LBDQ scores are below the sample mean on both dimensions. Twenty-nine, or 35 per cent, of the subjects were described in Quadrant I and were considered to have the most-effective pattern of leadership behavior, relative to the sample. Twenty four, or 29 per cent, of the subjects were descrived in Quadrant III and were considered to have the least-effective pattern of leadership behavior.

In order to establish a true dichotomy between most-effective and least-effective patterns of leadership behavior, data from individuals described in Quadrants I and III only were used to establish the dichotomous criterion. No further analyses were made of the data of the individuals described in Quadrants II and IV.

The AI was administered to each of the randomly selected subject principals to provide measures of their personality needs on 30 needs dimensions. The theoretical range of scores for each need dimension is from 0 to 10.

The HSCI was administered to 10 randomly selected teachers of each subjects' school to provide measures of the environmental press of their respective school on 30 press dimensions.

Administration and scoring of the AI and HSCI provided each subject with 30 personality needs scores and each subject's respective school with 30 environmental press scores.

The basic discriminant variables, indices of degree of congruence between personality needs and environmental press, were determined by computing the discrepancy (absolute difference) between scores on each of the 30 needs-press dimensions. The discrepancy score is an index of how congruent an individual is to his environment with respect to each of 30 needs-press variables.

By computing the discrepancy between each of 30 parallel needs-press dimensions, each subject was provided with 30 indices of the degree of congruence between personality needs and environmental press. The criterion groups were defined by staff responses to the LBDQ, with 29 subjects comprising the most-effective leadership behavior group (M-EG) and 24 subjects comprising the least-effective leadership behavior group (L-EG)

Several levels of statistical analyses were utilized in testing the hypotheses. A pooled variance t test for independent means was used to test the significance of each independent variable as a discriminator between the two criterion groups.

The multiple discriminant analysis was used to determine if the criterion groups could be separated when the independent variables were considered in combination. The statistical test of the significance of the separation of the groups afforded by the discriminant analysis is provided by an F approximation of the significance of Wilk's lambda criterion (Λ).

RESULTS

Hypothesis I Findings. Three levels of analysis were performed in testing the first hypothesis dealing with differentiating between a most-effective leadership behavior group as contrasted with a least-effective leadership behavior group. The first level, a univariate t test of the difference between independent means revealed four of 30 variables to significantly differentiate between educational administrators who were considered to be the most effective leaders as contrasted with administrators considered to be the least effective leaders.

The congruence variables Adaptability-Defensiveness, which refers to acceptance of criticism versus resistance to suggestion, and Exhibitionism-Inferiority Avoidance, which refers to attention-seeking versus shyness, were significant at the .05 level of confidence. The variables Conjunctivity-Disjunctivity, which refers to planfulness versus disorganization, and Impulsiveness-Deliberation, which refers to impetuousness versus reflection, were significant beyond the .01 level.

The univariate t test revealed little discriminating power when each of the variables were considered independently. A preliminary discriminant analysis was utilized to reduce the number of variables in the composite battery with those variables which contributed the least to the initial discrimination being eliminated. The relative contribution of each of the 30 original variables to the initial discrimination was indicated by its scaled vector of less than 1,000 were eliminated resulting in a composite battery comprised of the 20 most important needs-press congruence variables which were retained for further analysis.

A discriminant analysis of the reduced composite battery of 20 needs-press congruence variables revealed Wilk's lambda criterion to be significant beyond the .01 level indicating that the composite battery offered significant discriminating ability. The results of the discriminant analysis are presented in Table 1.

The scaled vectors indicated the variable Conjunctivity-Disjunctivity to be the largest contributor to the discrimination; however, the variables comprising the composite battery were relatively homogeneous in their discriminating ability.

TABLE I

MULTIPLE DISCRIMINANT ANALYSIS OF COMPOSITE GROUP PROFILES OF NEEDS-PRESS CONGURENCE VARIABLES

Variable		Discriminant Coefficients	Scaled Vectors
1.	Abasement-Assurance	.1738	1.5263
2.	Achievement	.2625	2.5062
3.	Adaptability-Defensiveness	.2104	2.6727
7.	Conjunctivity-Disjunctivity	-.5384	-3.8543
8.	Counteraction-Inferiority Avoidance	.3171	2.7691
10.	Dominance-Tolerance	.1090	1.3895
11.	Ego Achievement	-.2446	-2.4300
13.	Energy-Passivity	.1181	.9634
14.	Exhibitionism-Inferiority Avoidance	-.0793	-1.0346
15.	Fantasied Achievement	-.2197	-2.1640
16.	Harm-Avoidance-Risk Taking	-.1848	-2.0262
17.	Humanities-Social Science	-.2116	-2.9177
18.	Impulsiveness-Deliberation	-.1585	-1.4677
19.	Narcissism	.0226	- .3271
20.	Nurturance-Rejection	-.1889	-2.0685
21.	Objectivity-Projectivity	-.1389	-1.2627
22.	Order-Disorder	.0965	1.0419
24.	Practicalness-Impracticalness	-.1135	-1.1079
27.	Sensuality-Puritanism	-.3303	-2.7199
28.	Sexuality-Prudishness	.1883	2.6302

Wilks Lambda = .3477 $df_1 = 20$

F = 3.0018 $df_2 = 32$

$P < .01$

A third level of analysis demonstrated the effectiveness of the separation between the criterion groups by significantly classifying each of the subjects according to their group membership utilizing the results of the discriminant analysis. By the use of the centour method discussed by Cooley and Lohnes[14], classification Chi squares were obtained for each subject based

[14]William W. Cooley and Paul R. Lahnes, Multivariate Procedures for the Behavioral Sciences. pp. 134-141

on the means and dispersions of each of the groups. Each subject was then assigned to that group for whichever his Chi square was smallest. Three of 29 members of the M-EG and two members of the L-EG were misclassified with only five misclassifications out of a total of 53 classifications. The Chi square test of the accuracy presented in Table 2 reveals a value of 34.87, significant beyond the .01 level, indicating that the classifications afforded by the discriminant analysis to be highly accurate.

The discriminative power of the composite battery supports the hypothesis under investigation which stated that indices of the degree of congruence would significantly discriminate between the dichotomous criterion groups.

Hypothesis II Findings. The second hypothesis tested dealt with a comparison of the overall degree of congruence of the two criterior groups.

TABLE 2

CHI SQUARE TEST OF ACCURACY OF CLASSIFICATION OF SUBJECTS ACCORDING TO GROUP MEMBERSHIP

Actual Group Membership	Predicted Group Membership M-EG	L-EG	Total
M-EG	26 (15.32)	3 (13.68)	29
L-EG	2 (12.68)	22 (11.32)	24
Total	28	25	N=53

$\chi^2 = 34.87$ $P < .01$

The hypothesis was tested by determining if the value of the geoup centroid of the most-effective group was less than that of the group centroid of the least-effective group. As is shown by Table 3.

When the group centroids were plotted with respect to their location in the discriminant space, the group centroid for the most-effective group clearly was less (nearer to zero) than that of the least-effective group. The discriminant analysis, which was undertaken

in testing Hypothesis I, revealed the differences between the groups to be significant, indicating the group centroid of the most-effective group to be significantly less than that of the least-effective group.

Based on the evidence, the hypothesis proved to be acceptabl. "On the whole", members of the most-effective group were more congruent with their environment than were members of the least-effective group.

Hypothesis III Findings. The third hypothesis dealt with comparing the discriminating ability of congruence variables and needs variables. The first analysis undertaken was a univariate t test of the difference between independent means. Three of 30 needs variables were found to significantly differentiate between educational administrators who were considered to be the most-effective leaders, as contrasted with administrators considered to be the least-effective leaders.

The variables Counteraction-Inferiority Avoidance, which refers to restriving after failure versus withdrawal; Exhibitionism-Inferiority Avoidance which refers to attention-seeking versus shyness, were si nificant discriminators at the .05 level. Science, which indicates an interest in the Natural Sciences, was significant beyond the .01 level.

The second level of analysis undertaken was a discriminant analysis of a composite battery of 20 needs variables which were identified by a preliminary analysis as being the most important discriminators. Wilk's lambda criterion was significant beyond the .01 level, as evaluated by an F approximation. This significar discriminating ability was demonstrated by classifying the individual subjects according to their group membership with beyond chance accuracy, beyond the .01 level of significance.

Since the ability of each set of data to discriminate between the groups can be demonstrated by the method of classification, the comparison between congruence variables and needs variables was accompanied by means of the Critical Ratio to determine the significance of the differences between the propor tion of correct classifications afforded by each set of data.

As shown in Table IV, congruence variables provided 48 correct classifications out of a total of 53 classifications while needs variables provided 51 correct classifications. The resulting Critical Ratio value of 1.17 is nonsignificant, indicating that there were no significant differences between the proportions of correct classifications afforded by congruence variables and needs variables. The hypothesis, then, was rejected. There were no significant differences in the ability of congruence indices or needs scores to discriminate between a group of educational administrators classified as being the most-effective leaders as contrasted with a group classified as

being the least-effective leaders. Both sets of data, needs scores and congruence indices, provided significant discriminations.

TABLE 4

COMPARISON OF THE ACCURACY OF CONGRUENCE VARIABLES AND NEEDS VARIABLES IN CLASSIFYING SUBJECTS ACCORDING TO GROUP MEMBERSHIP

	Congruence Variables			Needs Variables	
Group	Number of Accurate Classifications	Number of Inaccurate Classifications	Group	Number of Accurate Classifications	Number of Inaccurate Classifications
M-EG	26	3	M-EG	28	1
L-EG	22	2	L-EG	23	1
Total	48	5		51	2

CR = 1.17 $P > .05$

Hypothesis IV Findings. The fourth hypothesis dealt with comparing the discriminating ability of congruence indices and press scores.

A discriminant analysis of the composite battery of 20 press variables revealed the separation of the groups to be significant beyond the .01 level. This discriminative ability was demonstrated by accurately classifying each of the individuals according to their respective group membership beyond the .01 level of significance.

As in testing the previous hypothesis, the discriminating power of each set of data, congruence variables and press variables, was compared by determining if the differences between the number of correct classifications provided by each set of data were significant. As shown by Table 5, congruence indices provided 48 correct predictions out of a total of 53 predictions while press scores provided 50 correct classifications.

The resulting Critical Ratio of .78 is non-significant, indicating that there are no significant differences between the proportions of correct classifications afforded by congruence indices and press scores.

Based on the objective evidence, the hypothesis was rejected. There were no statistically significant differences in the ability of congruence variables or press variables to discriminate between a group of educational administrators considered to be the most-effective leaders as contrasted with a group considered to be the least-effective. Both sets of data, press scores and congruence indices, provided significant discriminations.

TABLE 5

COMPARISON OF THE ACCURACY OF CONGRUENCE INDICES AND PRESS SCORES IN CLASSIFYING SUBJECTS ACCORDING TO GROUP MEMBERSHIP

	Congruence Indices			Press Scores	
Group	Number of Accurate Predictions	Number of Inaccurate Predictions	Group	Number of Accurate Predictions	Number of Inaccurate Predictions
M-EG	26	3	M-EG	27	2
L-EG	22	2	L-EG	23	1
Total	48	5		50	3

CR = .78 P > .05

Hypothesis V Findings. The last hypothesis tested deals with the predictive efficacy of congruence indices. No attempt was made to cross-validate the results of the analysis of this hypothesis since it was not within the scope of this study to do so. The prime concern in testing this hypothesis was to ascertain if the group membership of the individual subjects could be predicted and, if so, the improvement over chance expectancies afforded by knowledge of discriminant analysis results.

Most of the data was advanced from the analysis of Hypothesis I. There, it was found that a discriminant analysis of the composit battery of congruence variables differentiated between the criterion groups beyond the .01 level of significance. Based on the discriminant analysis results, the group membership of individual subjects was predicted by means of the maximum-liklihood classification technique with beyond chance accuracy, significant beyond the .01 level when evaluated by Chi square.

Utilizing the maximum liklihood method of classification, 48 correct predictions of group membership were made.out of a total of 53 predictions. Based on chance alone, one would expect to predict group membership correctly 50 per cent of the time. This would provide 26.5 correct predictions out of the total of 53 predictions. The maximum liklihood method of classification, based on results of the discriminant analysis of the composite battery of congruence indices, produced an 81.1 per cent improvement over chance in the number of correct predictions of the group membership of all the subjects.

In view of the evidence presented, the hypothesis that the group membership of the individual subjects could be predicted by congruence indices was accepted as being true for the study sample. The fact that all predictions were vased on sample statistics necessarily imposes a restriction on the hypothesis and limits its validity only to the sample under investigation. Also, the acceptance of this hypothesis must be tempered by the fact that all sets of data, congruence indices, needs scores, and press scores, provided significant predictions of the group membership of the individual subjects.

DISCUSSION

At this juncture, a discussion of what appears to be important questions and implications generated by the study results, but which are apart from those objectively supported conclusions, appears to be in order.

The findings of the first two hypotheses indicated that the subjects who were considered to be the most-effective leaders differed significantly from those considered to be the least-effective leaders with respect to their interaction with their environment. The most-effective leaders were found to be significantly more congruent with their environment than the least-effective leaders. These findings provide substantial evidence to support the theory that individuals perform more effectively in an environment which is congruent with their needs.

It would be naive to conclude that an individual is an effective performer because he is placed in an environment which conforms to his needs. However, this cause-and-effect relationship was not demonstrated by the findings of this study. What was demonstrated was that group membership was related to certain degrees of congruence between personality needs and environmental press and, in this sense, no evidence of a causal effect was claimed.

This lack of evidence of a causal effect imposes a restriction on validly assessing the potential value of indices of personality-environment interaction as predictors of patterns of leadership behavior. The acceptance of Hypothesis V indicated that leadership performance could be predicted by the congruence indices but it is evident that the predictions were valid only for the sample subjects. A great deal additional research needs to be conducted on the predictive value of congruence indices before a true assessment of their predictive validity can be made.

The rejection of Hypothesis III indicated that a composite battery of indices of the degree of congruence between an individual and his environment provided no greater ability to differentiate between the most-effective and least-effective leaders than did a composite battery of personality needs variables. In fact, both congruence variables and needs variables provided highly significant discriminations between the two criterion groups.

The fact that the composite battery of needs variables significantly discriminated between the criterion groups was not overly surprising. Other studies have found personality variables to be significantly correlated with a leadership criterion such as that measured by the Leader Behavior Description Questionnaire which was employed in this study.

The rejection of Hypothesis IV indicated that a composite battery of environmental press variables provided as great an ability to discriminate between the criterion groups as did the composite battery of congruence variables. Again, both congruence variables and press variables significantly differentiated between subjects considered the most-effective and least-effective leaders. Since the design of the study was not a causal-comparative design, any explanation of the aforementioned study results would necessarily be highly subjective and speculative.

The study findings indicate that: (1) the principals who are the most-effective leaders have personality configurations significantly different from the personality configurations of the least-effective leaders; (2) the most-effective leaders are more congruent with their academic environments; and (3) the school environments of the most-effective leaders are significantly different from the school environments of the least-effective leaders.

With reference to the joint findings, one avenue open for discussion pertains to the effect the principal has upon his school environment. It is possible that the principal who is an effective leader is able to exert influence over his school to the extent that he shapes the environment to conform to his preferences. On the other hand, the principal who is not so effective a leader may not exert so great an influence and, consequently, the environment does not conform to his personality to the degree attained by the more effective leader.

Recalling the nature of the study sample, it is evident that the subjects were in an ideal position to accomplish a conformation of the environment to their personality preferences. The sample schools were small enough (200-1,200 pupil enrollment) to provide a high degree of interpersonal interaction between the principal and his staff. It is reasonable to expect that leadership was exercised on a highly personable basis. Consequently, the principal, providing he possessed the capability, would have had ample opportunity to influence the staff, and ultimately the school environment, to conform to his preferences.

In terms of selection, and if it were found that the effective leader does influence the environment to conform to his preferences, the process of selection might have as its objective the placing of a particular individual in a certain school to change the environment rather than attempting to match a personality to the environment. This immediately begs the question as to what kind of personality will provide an environment which is conducive to optimal learning.

Clearly, the preceding discussion reflects the the traits and attributes theory of leadership. Another avenue is open for discussion which reflects the situational theory of leadership. This approach would propose that it is the situation in which the principal finds himself which exerts an influence upon him to conform to the press of the situation. It would appear feasible for a situation to press upon an individual to the extent that his pattern of behavior would conform to the expectations held for the role he occupies. However, the question as to whether or not the academic environment can influence a principal's personality needs to the degree which would command conformity begs an answer.

The preceding discussions have been somewhat divergent. A third avenue open for discussion would reflect a convergent or middle-of-the-road approach. It is feasible that the high degree of congruence between the effective leader and his school environment is a function of a mutual relationship. During the process of interpersonal interaction, both the individual and environment exert influence and are, in turn, influenced by each other. This mutual interrelationship would tend to bring both the environment and the individual to compromise position. It will be recalled that the subjects had held their position at least one year prior to the current investigation and the average length of tenure was 10.9 years which provided ample time for the mutual influence to take place.

Conversely, the high degree of dissonance between the non-effective leader and his school environment is a function of the inability of the leader to relate to his school environment. It will also be recalled that the most-effective leaders were defined as those principals who were high in both the task oriented and person oriented dimensions of leadership whereas the least-effective were those principals who were low in both aspects of leadership. Undoubtedly, by definition alone, a greater degree of mutual relationship existed between the effective leaders comprising this sample for this study than for the non-effective leaders.

While the preceding discussions provide no validated explanation of the study findings, they do serve to point out the enormous complexity of the matrix of variables which must be considered when selecting an educational leader. In viewof the findings, any recommendation that selection techniques should emphasize one set of variables over another would be tenuous at best.

Another area of interest in this discussion is an evaluation of the assessments employed in the study.

The Leader Behavior Description Questionnaire, used to obtain criterion measures, produced results similar to those of other studies employing the instrument. Analysis of the data provided by the LBDQ indicated that the instrument provided relatively stable indices of the behavior of the principals; that the staffs of each school were homogeneous in their descriptions of the leader behavior of their respective principal; and that the descriptions of different principals differed significantly. The two leadership dimensions of the LBDQ, Consideration and Initiating Structure, are in complete accord with contemporary theories of leadership as it exists in formal organizations.

Because of their parrallel construction, the question could be raised for this study as to whether or not both the AI and HSCI were providing measures of the same parameters. By deduction, if data from one of the instruments provided significant correlations so, too, would the data from the other instrument. While previous research has revealed that the parallel instruments provide measures of independent parameters, and it was assumed that this would be true for this study, a great deal more research needs to be undertaken to further support this contention.

Another area of interest for discussion is an evaluation of the theoretical orientation on which the study was based. Because the purpose of this study was to investigate the dimensions of interaction between educational administrators and their school environment, the theory of personality of Henry A. Murray provided a highly satisfactory fromework. Murray's constructs of personality needs and environmental press are quite useful for a study with an ecological frome of reference. If a criticism could be leveled at the theory, as it applied to the current study, it would be that Murray's taxonomy of needs and press is too specific to be

amenable for ready explanation of gross behavior patterns, such as the leadership behavior of educational administrators.

CONCLUSIONS AND IMPLICATIONS

An exploratory study, such as the current investigation, will necessarily have certain limitations which prevent wide-ranging generalizations to be made. The conclusions reached for this study are limited by the subject population, the instruments, the criterion, and the methodology employed.

On the basis of the study and the analysis of data, the pertinent conclusions are advanced as follows:

1. Dimensions of the interaction between the personalities of secondary-school principals and the press of their respective school environments exist and are amenable to quantitative assessment.

2. The interaction between a principal and his academic environment is an important differentiating factor of leadership behavior, but it is no more important than either the personal attributes of the individual or the environment in which he works.

3. Secondary-school principals who are effective leaders differ quantitatively from those who are not as effective with respect to their personality needs, the press of their school environment, and their interaction with their respective school environments.

4. After at least an initial year of tenure in the position of principal, the more congruent an individual is with his respective environment the greater the liklihood that his leadership behavior will be effective.

5. With respect to the process of assessing educational leaders, the criteria by which secondary-school principals are differentiated can be based with equal effectiveness on either data pertaining to the personality of the individual, the press of the school environment, or the potential interaction between the individual and the environment.

6. Until further research is conducted, with reference to the findings of the current study, the results of this investigation have greater theoretical significance than significance for practical application to the selection of secondary-school principals.

As is the case with many exploratory studies, the current investigation poses more questions than it provides answers. This being the case, and aside from the implications for study generated by the preceding discussions, the purpose of this section is to present some specific recommendations for further study.

To adequately test the conclusions drawn from this study that the interaction between an administrator and his school environment is an important differentiating factor of leadership behavior, several types of studies could be undertaken.

It is recommended that a longitudinal study be undertaken to determine the effects which an administrator has upon his school environment and the environment upon the administrator. Measures of the personality needs of administrators and measures of the press of schools could be obtained prior to the administrators assuming a position in their respective schools. Administration of the same instruments after a period of tenure, say after one or two years on the job, would reveal any changes which occurred during that length of time. The data from such a longitudinal study could be utilized to answer such questions as:

1. Are there significant differences in the environmental press scores measured prior to the beginning of a new school year with a new administrator and measured at the end of the school year? At the end of two years?

2. Are there significant differences in the behavioral patterns of the administrator measured at the beginning of the school year and measured at the end of one year? At the end of two years?

3. Are the environmental press scores more congruent with the personality needs scores of the administrator after a one year tenure? After a two year tenure?

4. Are the effective administrators those who were placed in a position where their needs scores closely matched the press of the environment?

Another avenue open for research would be to employ the clinical technique employed by Stern, Stein, and Bloom cited earlier in this study, and attempt to predict the performance of administrators. A press analysis used to establish the hypothetical criterion model of the optimally functioning principal, could be undertaken by means of in-depth interviews with superiors, faculty, and students of the sample schools. Assessment of the internal frame of reference of the principals could be accomplished by means of projective personality tests and/or personality inventories. The degree of congruence between individuals and their environment could then be determined by a clinical procedure and predictions made as to which of the subjects would be the most effective performers. Naturally, a very small sample would be required since this design would require a great amount of time.

Another possiblilty for study is an attempt to determine the relationship between the administrator's job satisfaction and the degree of congruence between his personality and the press of his environment. The question to be answered is: Are administrators who are congruent with their school environment more satisfied with their jobs that those administrators who are dissonant with their academic environment?

A study of the interaction between an individual and his community environment would also appear to be relevant to how that individual performs as a leader. The design of such a study would probably make extensive use of the interview technique in order to assess the variables relevant to such a study.

As was shown in the analyses of this study, certain needs-press congruence indices contributed more to the total discriminant function than did others. A factor analysis of such indices may reveal significant clusters of variables which, in turn, may provide the most effective predictors of performance. It would also appear rewarding to factor analyze both needs scores and press scores to arrive at a more descriptive picture of the personality configuration of administrators and the press corfiguration of school environments. A factor analysis of HSCI would appear especially relevant since one has not yet been reported.

Many other studies, and many implications which are amenable to study, may be evident to the interested reader. It is the firm belief of the writer that sound procedures for the selection of quality educational administrators will result only if research provides the knowledge on which those procedures are based. If the current study serves only to stimulate research in the problem area of leadership and the selection of leaders, then the study will have made a significant contribution to the field of educational administration.

SUMMARY

Summary of Procedures. The primary objective of this study was to investigate the dimensions of interaction between educational administrators and their academic work environment which are associated with the behavior of those administrators as leaders. Data were collected by means of instruments mailed to a randomly-selected sample of educational administrators and selected members of their staffs.

The study sample consisted of 95 secondary school principals of grades 9 to 12 or 10 to 12, with a pupil enrollment of 200 to 1,200, and who had held the position of principal in their respective school at least one year prior to the collection of data. Ten staff members of each subject's school were also selected at random to participate in the study. Responses were received from 92 schools with 83 schools providing usable data.

Three self-administering instruments provided the sources of data. The Leader Behavior Description Questionnaire (LBDQ) was completed by staff members to quantitatively describe the behavior of their respective principal in his role as formal leader. Scores on the two leadership dimensions measured by the LBDQ, Consideration and Initiating Structure, were used to establish the dichotomous criterion groups of most-effective and least-effective patterns of leadership behavior.

Twenty-nine subjects scored above the mean on both the LBDQ dimensions of Consideration and Initiating Structure and were considered to be characterized by most-effective patterns of leadership behavior, relative to the sample group. Twenty-four subjects scored below the mean on both the LBDQ dimensions and were considered to be characterized by least-effective patterns of leadership behavior. The data of the remaining subjects who were not classified into one of the two aforementioned categories were not considered for further analysis.

The Activities Index (AI) was administered to the principals to obtain measures of their perceived personality needs. The High School Characteristics Index (HSCI) was administered to each of 10 randomly selected teachers of each subjects' school to obtain measures of the press of the school environment.

The 30 scales on the HSCI and AI parallel one another, with the AI scales referring to manifestations of needs and the HSCI scales referring to corresponding manifestations of press.

Indices of the degree of congruence between personality needs and environmental press were obtained for each subject by computing the discrepancy between each of the 30 parallel scales of the AI and HSCI. These dimensions of interaction, indices of degree congruence between needs and press, are indicative of the degree to which a subject's personality matches the press of his school environment. The AI also provided the measures relative to personality variables and the HSCI provided the measures relative to environmental variables.

Several levels and kinds of statistical analyses were utilized in making comparisons between the dichotomous criterion groups in order to test five hypotheses.

Hypothesis I Summary. When each of the 30 congruence variables were analyzed by means of a pooled variance t test, four variables were found to significantly discriminate between the criterion groups. Indices of the degree of congruence on the variables Conjunctivity-Disjunctivity and Impulsiveness-Deliberation significantly differentiated between the criterion groups at the .01 level of significance. The variables Adaptability-Deference and Exhibitionism-Inferiority Avoidance were significant discriminators at the .05 level.

A preliminary multiple discriminant analysis of the 30 congruence variables was undertaken to reduce the number of variables comprising the composite battery. A subsequen discriminant analysis of the composite battery of 20 congruence variables revealed the composite to significantly discriminate between the most-effective and least-effective criterion groups beyond the .01 level of significance. The scaled vectors obtained from the discriminant analysis indicated the congruence variables Conjunctivity-Disjunctivity and Humanities-Social Science to be the greatest contributors to the discrimination although all the variables comprising the composite battery were relatively homogeneous in their relative contribution to the discrimination.

The effectiveness of the separation between groups was demonstrated by means of a maximum likelihood classification technique. Using this technique, the individual subjects were accurately classified as belonging to one of two criterion groups beyond the .01 level of significance.

On the basis of the statistical analyses, the hypothesis was accepted as being true. Indices of the degree of congruence between personality needs and environmental press effectively differentiated between a group of educational administrators classified according to most-effective and least-effective patterns of leadership behavior.

Hypothesis II Summary. Analysis of data relevant to testing this hypothesis indicated that, on the whole, the most-effective group were more congruent with their environment than were the least-effective group. The discriminant analysis of congruence indices indicated that the most-effective group differed significantly beyond the .01 level, from the least-effective group when all variables were considered in combination. The group centroid (mean composite score) for the most-effective was less than the group centroid of the least-effective group, indicating a greater degree of congruence.

In view of the evidence, the hypothesis was accepted. The educational administrators considered to be the most-effective leaders were significantly more congruent with their environment than were the educational administrators considered to be not as effective leaders.

Hypothesis III Summary. A pooled variance t test revealed three needs variables to significantly discriminate between the criterion groups. The variables Counteraction-Inferiority Avoidance and Exhibitionism-Inferiority Avoidance were significant discriminators at the .05 level. The needs variable Impulsiveness-Deliberation proved to significantly discriminate between the most-effective and least-effective criterion groups at the .01 level of significance.

A preliminary multiple discriminant analysis of the 30 needs variables was undertaken to reduce the number of variables comprising the composite battery. A subsequent discriminant analysis of the composite battery of 20 needs variables revealed

a significant discrimination between the criterion groups beyond the .01 level. While all the needs variables comprising the composite battery were relatively homogeneous in their contribution to the discrimination, the needs variables Affiliation-Rejection and Humanities-Social Science were the most important contributors to the discrimination.

The effectiveness of the separation was demonstrated by the maximum likelihood classification technique which provided significantly accurate classifications according to group membership beyond the .01 level.

A statistical comparison of the ability of congruence indices and needs scores to discriminate between the criterion groups revealed no significant differences in the differentiating power of each set of data, as determined by the number of correct predictions of group membership of individual subjects.

The hypothesis failed to be supported by the statistical analysis and was rejected.

Hypothesis IV Summary. The pooled varianct t test of each of 30 press variables indicated the press variables Harm-Avoidance-Risktaking, Reflectiveness, and Supplication-Autonomy to significantly discriminate between the criterion groups at the .01 level of confidence. The press variables Narcissism and Order-Disorder were significant discriminators at the .05 level.

A preliminary multiple discriminant analysis of the 30 press variables was undertaken to reduce the number of variables comprising the composite battery. A subsequent discriminant analysis of the composite battery of 20 press variables revealed a discrimination between the criterion groups which was significant beyond the .01 level.

The press variables, Achievement, Emotionality-Placidity, and Reflectiveness were found to be the greatest contributors to the discrimination.

The effectiveness of the discrimination was demonstrated by means of a maximum likelihood classification technique which significantly classified the subjects according to group membership beyond the .01 level.

The ability of the two sets of data, congruence indices and press scores, to discriminate between the criterion groups was determined by the number of correct predictions of group membership of individual subjects afforded by each set of data. The hypothesis was rejected as the statistical analysis failed to demonstrate any significant differences between the proportion of correct predictions provided by each set of data.

Hypothesis V Summary. The hypothesis was borne out as the number of correct classifications of the group membership of individual subjects was significant beyond the .01 level.

Using the results of the discriminant analysis of the composite battery of congruence variables to classify each subject to one of the two criterion groups, 81.1 per cent improvement over chance expectancies in predictive effectiveness was obtained.

Prediction in the above case was not meant to be a priori predictions but an estimate of the improvement over chance expectancies gained from knowledge of the discriminant analysis results.

In view of the findings, Hypothesis V was confirmed. The group membership of individual subjects was accurately predicted from knowledge of the results of the discriminant analysis of congruence indices.

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